

REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. No new matter is believed to be added to the application by this Amendment.

Entry of Amendment

Entry of this Amendment under 37 C.F.R. §1.116 is respectfully requested because it cancels claims and places the application in condition for allowance. Alternately, entry is requested because it places the application in better form for appeal.

Status of the Claims

Upon entry of this Amendment, claims 7-18 are pending in the application. Claims 1-6 are cancelled. Claims 7 and 9 have been amended to be drawn to the siloxane derivative embodiment of the invention, which was already set forth in these claims. Claims 8 and 10-12 have been amended to not depend upon a cancelled claim. No new Issues are presented by the amended claim set.

Rejection Under 35 U.S.C. 103(a) Over Saka or Bugg in View of Silenius

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being obvious over Saka (EP 747183) or Bugg (U.S. Patent No. 4,044,172) in view of Silenius (WO

94/22647). Applicants respectfully traverse.

The Present Invention and its Advantages

The present invention pertains to a method of treating wood that includes applying two materials: a siloxane hydrophobizing agent and a complexing agent. The invention is typically embodied by claim 13, which sets forth:

13. A method for protecting wood and similar lignocellulose-based materials against decay and molding, comprising:
 - treating with a hydrophobification compound comprising siloxane derivatives, which improve its water-repellence, and
 - treating with a complexing agent capable of binding transition metals.

Advantages of the invention over the related art arise from the required effectiveness against decay being arrived at by using lower concentrations than if individual active agents were used. This unexpected result may be due from the compounds reacting with each other to form a complex that promotes decay-preventing action.

Distinctions of the Invention Over Saka, Bugg and Silenius

Distinctions of the invention over Saka, Bugg and Silenius were presented in the Amendment filed January 8, 2004. For brevity, these distinctions are not fully reproduced here.

Saka pertains to modifying wood by impregnating with a methylsiloxane oligomer, but Saka fails to disclose treating with a complexing agent capable of binding the transition metals. Bugg pertains to the superficial treatment of wood with a siloxane and fails to disclose or suggest the complexing agents. The Examiner turns to Silenius for teachings pertaining to complexing agents and takes the position that it would have been obvious to combine Silenius with Saka or Bugg.

However, the combination of Silenius with Saka or Bugg fails to motivate one having ordinary skill in the art to produce the invention, and a *prima facie* case of obviousness has not been made. The synergistic effects of the combination of components of the invention would also fully rebut any case of obviousness that could be made.

In her Response to Arguments at pages 3-4 of the Office Action, the Examiner acknowledges that Silenius differs from the surface treatment of Bugg because Silenius overloads the wood with complexing agent. At page 4, lines 2-5 of the Office Action, the Examiner states: "Combining the complexing agent of Silenius with the binders of either Bugg or Saka et al, would eliminate the need to overload the wood, because they would function to prevent washing away of the complexing agent, and would therefore not be exclusive of each other, but expectedly **synergistic**." (emphasis added).

Basically, "synergy" means the working together of two things (muscles or drugs, for example) to produce an effect greater than the sum of their

individual effects. The Merriam-Webster Dictionary (1997) defines synergism: "interactions of discrete agencies (as industrial firm), agents (as drugs), or conditions such that such that the total effect is greater than the sum of the individual effects."

The effect of synergism on patentability is set forth in MPEP 716.02(a), which states: "Evidence of a greater than expected result may also be shown by demonstrating an effect which is greater than the sum of each of the effects taken separately (i.e., demonstrating 'synergism'). *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989)."

The synergistic effect of the invention is described in the specification at page 8, lines 4-7:

In the present invention it has been shown that the decay preventing efficacy of EDTA and SISW can be improved with a mixture formulated from these active agents. The mixing of the compounds further results in that the required efficacy against decay is arrived at by using lower concentrations than if individual active agents were used.

The experimental results for leaching are described at page 8, lines 9-17. The inventors note that the mixture enhances the efficacy of the individual active agents. "At the concentration used in the test, neither active agent alone provides sufficient action against decay (weight loss less than 3%) after leaching." (specification at page 8, lines 16-17).

Also, Examples 4-6 at pages 13-16 of the specification detail the synergistic effect when the two components are combined. These results are diagrammed in the corresponding Figures. These excellent results can by no means be expected from the prior art.

The unexpectedness of the results are discussed by the inventors at page 10, lines 4-7: "The causes of the improved efficacy against decay of the EDTA-siloxane mixture are at present not known precisely. It is possible that the compounds react with each other, forming a complex which retains and also promotes those properties of the treatment required for decay preventing action."

Furthermore, Example 1 shows interestingly that the chelator-siloxane combination improved the water-repellence of wood: "The water-repellence values of the wood surface obtained with the combination treatment are better than the values obtained with a treatment with siloxane alone." (specification at page 11, lines 8 to 10).

This is clearly an unexpected effect. The water-repellency achieved by the invention is not directly derivable from the siloxane compound, but is enhanced by the chelator-siloxane combination. Perhaps this indicates that a chemical reaction has occurred between the individual components, and the reaction product will have a better water-repellency than the siloxane residue of the combination.

Example 2 provides further evidence that the siloxane-chelator mixture behaves unexpectedly: the mixture penetrates into the cell wall (an effect that is very valuable as far as wood-preservation is concerned).

Example 3 shows that the complexing agent appears to enhance the effect of the siloxane on dimensional stability. How can this effect be explained by the known properties of the complexing agents? There is nothing in the cited art that would point to this

Thus, the specification contains abundant data showing that the synergistic effect is much greater than the sum of the individual components, and there is an enhancing effect of the complexing agent on some properties of the hydrophobic agent that are totally unexpected.

Therefore, a *prima facie* case of obviousness has not been made over independent claims 7, 9 and 13. Even if one assumes *arguendo* that a case of *prima facie* obviousness can be made over the claimed invention, this obviousness would be fully rebutted by the unexpected results represented by the synergism of the invention. Claims depending upon claims 7, 9 or 13 are patentable for at least the above reasons. This rejection is overcome and withdrawal thereof is respectfully requested.

Claim for Priority

It is gratefully acknowledged that the Examiner has recognized the Applicants' claim for foreign priority. In view of the fact that the Applicants'

claim for foreign priority has been perfected, no additional action is required from the Applicants at this time.

Drawings

The Applicants have not received a Notice of Draftsperson's Patent Drawing Review Form PTO-948, indicating whether the formal drawings have been approved by the Official Draftsperson. Clarification in the next official communication is respectfully requested.

Acknowledgement of Information Disclosure Statement

The Examiner has acknowledged the Information Disclosure Statement filed on July 25, 2002. An initialed copy of the Form PTO-1449 has been returned by the Examiner in the Office Action mailed October 8, 2003. No further action is necessary at this time.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject claims, but merely to show the state of the art, no comment need be made with respect thereto.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete

response has been made to the outstanding Office Action, and that the present application is in condition for allowance. The Examiner is accordingly respectfully requested to allow the application.


If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Robert E. Goozner, Ph.D. (Reg. No. 42,593) at (703) 205-8000.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a three (3) month extension of time for filing a reply in connection with the present application, and the required fee of \$980.00 is attached to the concurrently filed Notice of Appeal.

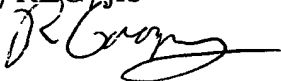
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,

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By 
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0365-0531P
Attachment
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